

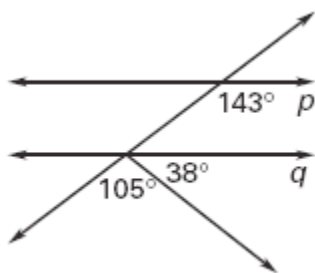
Geometry Date \_\_\_\_\_  
Parallel  
(pp 150–152)

3.4 Assignment: Proving Lines

1. What is your name?

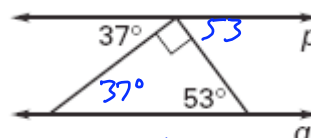
Is it possible to prove that lines  $p$  and  $q$  are parallel? If so, explain how.

2.



yes corresponding angles converse

3.



yes alt. int  $\angle$  converse.

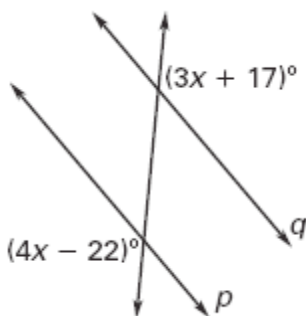
4.



No.

Find the value of  $x$  that makes  $p \parallel q$ .

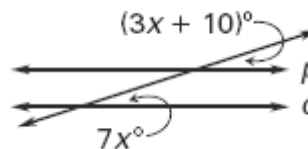
5.



$$3x + 17 = 4x - 22$$

$$39 = x$$

6.



$$3x + 10 = 7x$$

$$10 = 4x$$

$$x = 2.5$$

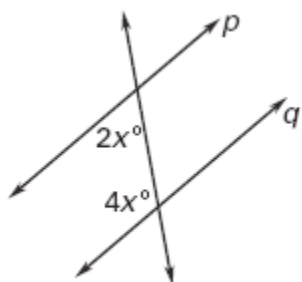
**Geometry Date\_\_\_\_\_**  
**Parallel**  
**(pp 150–152)**

### **3.4 Assignment: Proving Lines**

Geometry Date \_\_\_\_\_  
Parallel  
(pp 150-152)

3.4 Assignment: Proving Lines

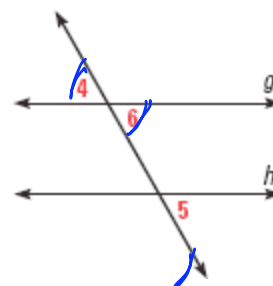
7.



$$6x = 180$$

$$x = 30^\circ$$

8. Write a two column proof for the Alternate Exterior Angles Converse: If two lines are cut by a transversal so that alternate exterior angles are congruent, then the lines are parallel.



**Given:**  $\angle 4 \cong \angle 5$

**Prove:**  $g \parallel h$

**Plan for Proof:** Show that  $\angle 4 \cong \angle 6$ ,  $\angle 6 \cong \angle 5$ , and then use the corresponding angle converse.

Statement	Reason
1. $\angle 4 \cong \angle 5$	1 Given
2. $\angle 4 \cong \angle 6$	2 Vertical $\angle$ 's are $\cong$ .
3. $\angle 6 \cong \angle 5$	3. Transitive
4. $g \parallel h$	4. corresponding $\angle$ conv postulate.



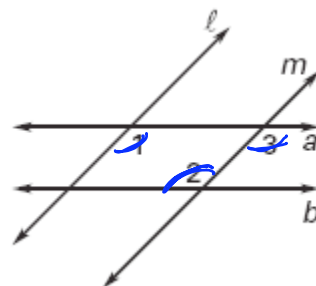
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3.4 Assignment: Proving Lines

9. Write a two column proof.

Given:  $\ell \parallel m$   
 $\angle 1 \cong \angle 2$

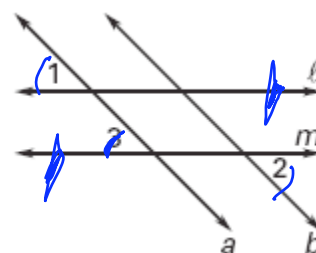
Prove:  $a \parallel b$



10. Write a two-column proof.

Given:  $\ell \parallel m$   
 $\angle 1 \cong \angle 2$

Prove:  $a \parallel b$



Statement	Reason
1. $\ell \parallel m$	1 Given
2. $\angle 3 \cong \angle 1$	2. If 2 $\leftrightarrow$ are $\parallel$ , then the corr $\angle$ 's $\cong$ .
3. $\angle 1 \cong \angle 2$	3. Given
4. $\angle 2 \cong \angle 3$	4 Transitive ext $\angle$ 's thm.

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### 3.4 Assignment: Proving Lines

5.  $a \parallel b$

5. Alt.

conv

Geometry Date \_\_\_\_\_  
Parallel  
(pp 150–152)

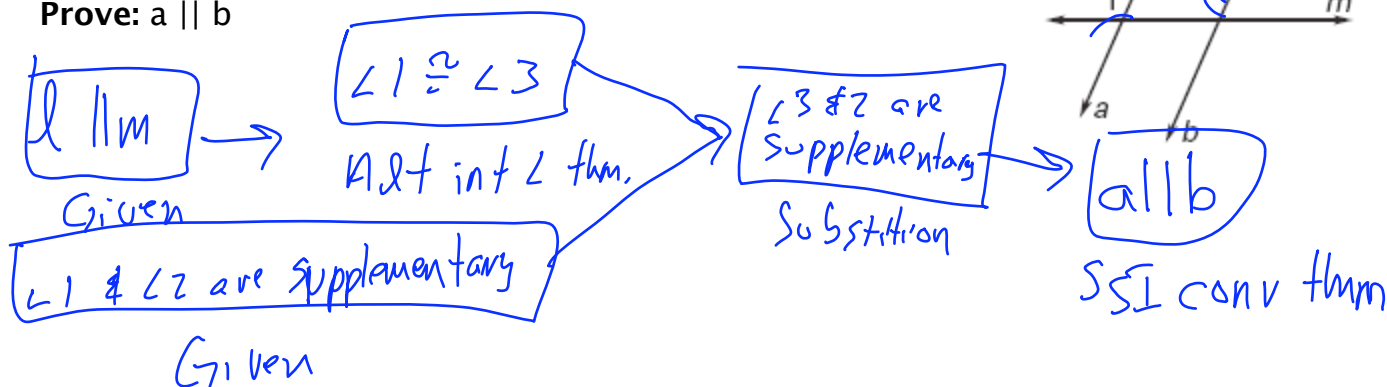
3.4 Assignment: Proving Lines

11. Write a flow proof.

Given:  $\ell \parallel m$

$\angle 1$  &  $\angle 2$  are supplementary.

Prove:  $a \parallel b$

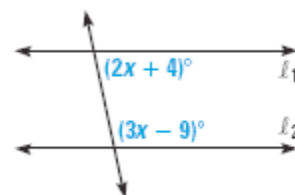


12. Converse What is the converse of the following statement?  
If  $\angle 1 \cong \angle 2$ , then  $n \parallel m$ .

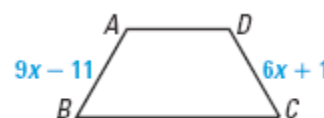
- A.  $\angle 1 \cong \angle 2$  if and only if  $n \parallel m$ .
- B. If  $\angle 2 \cong \angle 1$ , then  $m \parallel n$ .
- C.  $\angle 1 \cong \angle 2$  if  $n \parallel m$ .
- D.  $\angle 1 \cong \angle 2$  only if  $n \parallel m$ .

13. 37 What value of  $x$  would make line  $\ell_1$  &  $\ell_2$  parallel?

- A. 13
- B. 35
- C. 37
- D. 76
- E. 102



Review.



# Geometry Date \_\_\_\_\_ 3.4 Assignment: Proving Lines Parallel

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14. Find the value of  $x$  if  $\overline{AB} \cong \overline{AD}$  &  $\overline{CD} \cong \overline{AD}$ . (Chapter 2 Section 5)

$$9x - 11 = 6x + 1$$

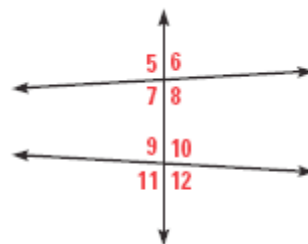
$$3x = 12$$

$$x = 4$$

Use the diagram to complete the statement. (Chapter 3 Section 1)

15. Which angle makes a pair of alternate exterior angles with  $\angle 12$ ?

$\angle 5$



16. Which angle makes a pair of corresponding angles with  $\angle 10$ ?

$\angle 6$

17. Which angle makes a pair of alternate interior angles with  $\angle 10$ ?

$\angle 7$

18. Which angle makes a pair of same-side interior angles with  $\angle 9$ ?

$\angle 7$

